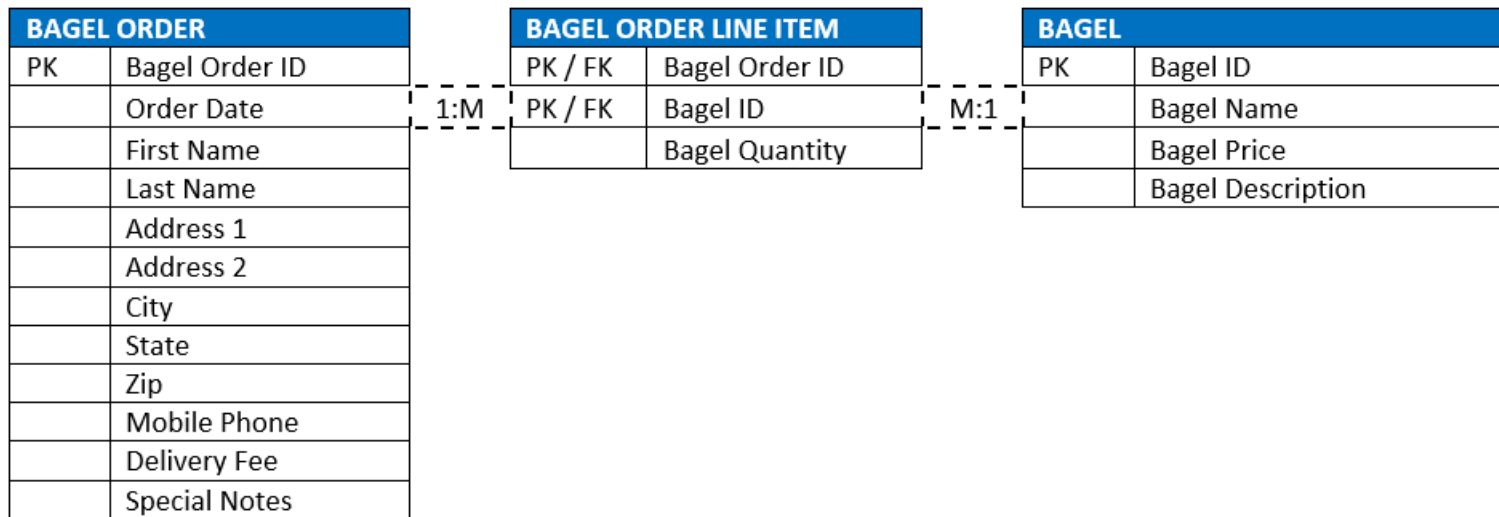


# **Part A**

## Nora's Bagel Bin Database Blueprints *(continued)*

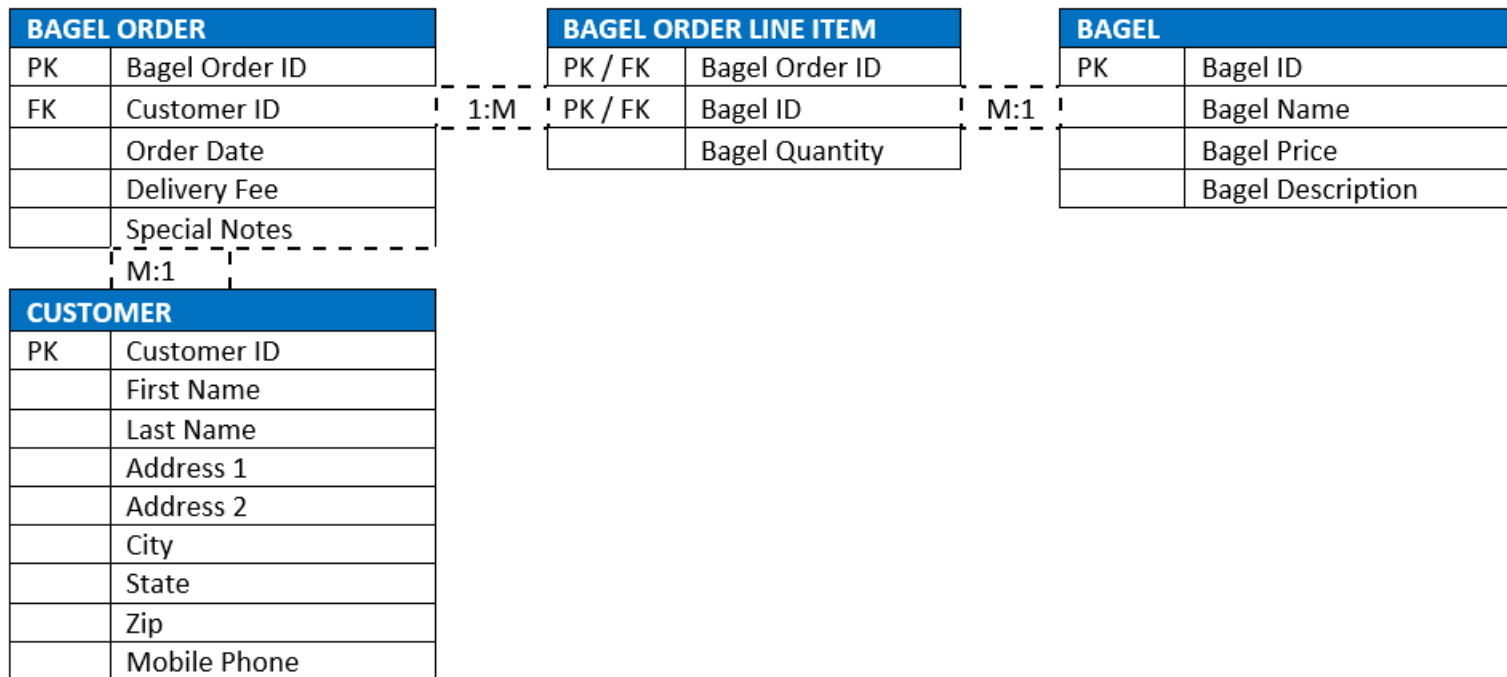
### Second Normal Form (2NF)



The attributes selected above each depend on the entire primary key of their respective tables. Because of this, the tables are in second normal form. The cardinality of the BagelOrder\_Contains\_BagelOrderLineItem relationship is 1:M because for every Bagel Order, there can be a maximum of 'many' line items, and for every line item, there is a maximum of one order. The cardinality of the BagelOrderLineItem\_Is\_Bagel relationship is M:1 because each line item is at most 1 bagel, and each bagel may be in many line items.

## Nora's Bagel Bin Database Blueprints *(continued)*

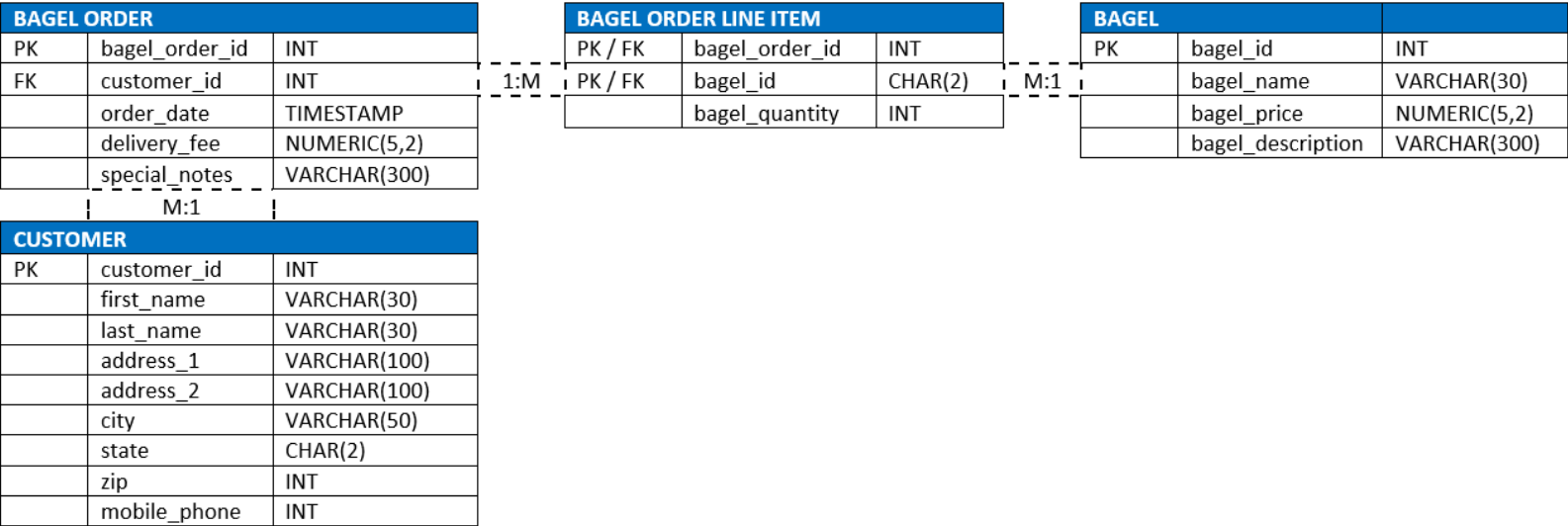
### Third Normal Form (3NF)



The attributes from the Bagel Order Line Item and Bagel tables did not need to be changed, but many of the attributes in the Bagel Order table depended on other non-key attributes. Within the new Bagel Order and Customer tables, each attribute depends on its respective primary key and nothing else. The cardinality between the top three tables remains unchanged. The cardinality between Bagel Order and Customer is M:1 because one customer may place many orders, but each order was placed by one customer.

# Nora’s Bagel Bin Database Blueprints *(continued)*

Final Physical Database Model



# **PART B**

# COFFEE\_SHOP Table Creation

The screenshot displays the MySQL Workbench interface. The 'SCHEMAS' panel on the left shows the 'sakila' database selected. The 'Query' editor in the center contains the following SQL code:

```
1 CREATE TABLE COFFEE_SHOP(  
2     shop_id INT,  
3     shop_name VARCHAR(50),  
4     city VARCHAR(50),  
5     state CHAR(2),  
6     PRIMARY KEY (shop_id)  
7 );
```

The 'Output' panel at the bottom shows the execution results:

| # | Time     | Action   | Message           | Duration / Fetch |
|---|----------|--|-------------------|------------------|
| 1 | 15:00:35 | USE jauntycoffeeco   | 0 row(s) affected | 0.000 sec        |
| 2 | 15:02:05 | CREATE TABLE COFFEE_SHOP(shop_id INT, shop_name VARCHAR(50), city VARCHAR(50), state CH... | 0 row(s) affected | 0.000 sec        |

The Windows taskbar at the bottom shows the system clock as 3:02 PM on 6/16/2023.

# EMPLOYEE Table Creation

The screenshot displays the MySQL Workbench interface. The main editor window shows the SQL script for creating the `EMPLOYEE` table. The script is as follows:

```
1 CREATE TABLE EMPLOYEE(  
2     employee_id INT,  
3     first_name VARCHAR(30),  
4     last_name VARCHAR(30),  
5     hire_date DATE,  
6     job_title VARCHAR(30),  
7     shop_id INT,  
8     PRIMARY KEY (employee_id),  
9     FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP(shop_id)  
10 );
```

The left sidebar shows the 'SCHEMAS' panel with a tree view containing 'jauntycoffeeco', 'mydb', 'sakila', and 'sys'. The 'sakila' schema is selected. The bottom panel shows the 'Output' window with the following log:

| # | Time     | Action   | Message           | Duration / Fetch |
|---|----------|--|-------------------|------------------|
| 1 | 15:00:35 | USE jauntycoffeeco   | 0 row(s) affected | 0.000 sec        |
| 2 | 15:02:05 | CREATE TABLE COFFEE_SHOP( shop_id INT, shop_name VARCHAR(50), city VARCHAR(50), state CH...  | 0 row(s) affected | 0.000 sec        |
| 3 | 15:06:41 | CREATE TABLE EMPLOYEE(employee_id INT, first_name VARCHAR(30), last_name VARCHAR(30), hir... | 0 row(s) affected | 0.016 sec        |

The right sidebar contains a message: 'Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.'

# SUPPLIER Table Creation

The screenshot displays the MySQL Workbench interface. The 'Navigator' pane on the left shows the 'sakila' database selected. The 'Query 1' editor in the center contains the following SQL code:

```
1 CREATE TABLE SUPPLIER(  
2     supplier_id INT,  
3     company_name VARCHAR(50),  
4     country VARCHAR(30),  
5     sales_contact_name VARCHAR(60),  
6     email VARCHAR(50) NOT NULL,  
7     PRIMARY KEY (supplier_id)  
8 );
```

The 'Output' pane at the bottom shows the execution results:

| #   | Time     | Action   | Message           | Duration / Fetch |
|-----|----------|--|-------------------|------------------|
| ✓ 1 | 15:00:35 | USE jauntycoffeeco   | 0 row(s) affected | 0.000 sec        |
| ✓ 2 | 15:02:05 | CREATE TABLE COFFEE_SHOP(shop_id INT, shop_name VARCHAR(50), city VARCHAR(50), state CH...   | 0 row(s) affected | 0.000 sec        |
| ✓ 3 | 15:06:41 | CREATE TABLE EMPLOYEE(employee_id INT, first_name VARCHAR(30), last_name VARCHAR(30), hir... | 0 row(s) affected | 0.016 sec        |
| ✓ 4 | 15:11:06 | CREATE TABLE SUPPLIER(supplier_id INT, company_name VARCHAR(50), country VARCHAR(30), sal... | 0 row(s) affected | 0.000 sec        |

The 'SQLAdditions' pane on the right contains a message: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."



# COFFEE Table Creation

The screenshot displays the MySQL Workbench interface. The left sidebar shows the 'SCHEMAS' panel with a tree view containing 'jauntycoffeeco', 'mydb', 'sakila', and 'sys'. The 'sakila' schema is selected. The main editor window shows a SQL query for creating the 'COFFEE' table. The query is as follows:

```
1 CREATE TABLE COFFEE(  
2     coffee_id INT,  
3     shop_id INT,  
4     supplier_id INT,  
5     coffee_name VARCHAR(30),  
6     price_per_pound NUMERIC(5,2),  
7     PRIMARY KEY (coffee_id),  
8     FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP(shop_id),  
9     FOREIGN KEY (supplier_id) REFERENCES SUPPLIER(supplier_id)  
10 );
```

The right sidebar shows the 'SQLAdditions' panel with a message: 'Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.'

The bottom panel shows the 'Output' window with the 'Action Output' tab selected. It displays a log of database actions:

| # | Time     | Action  | Message           | Duration / Fetch |
|---|----------|---|-------------------|------------------|
| 1 | 15:00:35 | USE jauntycoffeeco  | 0 row(s) affected | 0.000 sec        |
| 2 | 15:02:05 | CREATE TABLE COFFEE_SHOP(shop_id INT, shop_name VARCHAR(50), city VARCHAR(50), state CH...    | 0 row(s) affected | 0.000 sec        |
| 3 | 15:06:41 | CREATE TABLE EMPLOYEE(employee_id INT, first_name VARCHAR(30), last_name VARCHAR(30), hir...  | 0 row(s) affected | 0.016 sec        |
| 4 | 15:11:06 | CREATE TABLE SUPPLIER(supplier_id INT, company_name VARCHAR(50), country VARCHAR(30), sal...  | 0 row(s) affected | 0.000 sec        |
| 5 | 15:15:25 | CREATE TABLE COFFEE(coffee_id INT, shop_id INT, supplier_id INT, coffee_name VARCHAR(30), ... | 0 row(s) affected | 0.016 sec        |

The bottom status bar shows the system clock as 3:15 PM on 6/16/2023, along with weather information (75°F, Rain tomorrow) and various application icons.

# COFFEE\_SHOP Row Insertion

The screenshot displays the MySQL Workbench interface. The left sidebar shows the 'SCHEMAS' panel with a tree view containing 'jauntycoffeeco', 'mydb', 'sakila', and 'sys'. The 'jauntycoffeeco' schema is expanded, showing 'Tables', 'Views', 'Stored Procedures', and 'Functions'. The 'Administration' tab is active, and the 'Schemas' sub-tab is selected. The main query editor shows a query titled 'Query 1' with the following SQL code:

```
1 INSERT INTO COFFEE_SHOP
2 VALUES
3 (001, 'Java Lava', 'Los Angeles', 'CA'),
4 (002, 'Angie\'s Cafe', 'New York', 'NY'),
5 (003, 'Paul Bunyan\'s', 'Minneapolis', 'MN');
```

The 'Output' panel at the bottom shows the execution results:

| # | Time     | Action  | Message  | Duration / Fetch |
|---|----------|---|--|------------------|
| 1 | 15:24:51 | USE jauntycoffeeco  | 0 row(s) affected                                      | 0.000 sec        |
| 2 | 15:24:57 | INSERT INTO COFFEE_SHOP VALUES (001, 'Java Lava', 'Los Angeles', 'CA'), (002, 'Angie\'s Cafe', 'New York', 'NY'), (003, 'Paul Bunyan\'s', 'Minneapolis', 'MN'); | 3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0 | 0.000 sec        |

The 'SQLAdditions' panel on the right displays a message: 'Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.'

The Windows taskbar at the bottom shows the system clock as 3:25 PM on 6/16/2023, along with various application icons and a search bar.

# EMPLOYEE Row Insertion

The screenshot displays the MySQL Workbench interface. The left sidebar shows the 'SCHEMAS' panel with a tree view of databases including 'jauntycoffeeco', 'mydb', 'sakila', and 'sys'. The 'sakila' database is selected. The main editor window shows a SQL query for inserting data into the 'EMPLOYEE' table of the 'sakila-schema' database. The query is as follows:

```
1 INSERT INTO EMPLOYEE
2 VALUES
3 (001, 'Jess', 'Dahlstrom', '2018-09-28', 'Manager', 001),
4 (002, 'Tyler', 'Pearson', '2019-04-15', 'Cashier', 001),
5 (003, 'Ethan', 'Stone', '2020-05-19', 'Cashier', 001),
6 (004, 'George', 'Smith', '2019-02-19', 'Manager', 002),
7 (005, 'Trevor', 'Hendricks', '2021-07-21', 'Cashier', 002),
8 (006, 'Jamal', 'Swanson', '2022-07-09', 'Manager', 003),
9 (007, 'Samuel', 'Yuen', '2015-03-12', 'Cashier', 003);
```

The right sidebar shows the 'SQLAdditions' panel with a message: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."

The bottom panel shows the 'Output' window with the 'Action Output' tab selected. It displays the execution results of the query:

| # | Time     | Action  | Message  | Duration / Fetch |
|---|----------|---|--|------------------|
| 1 | 15:33:42 | USE jauntycoffeeco  | 0 row(s) affected                                      | 0.000 sec        |
| 2 | 15:37:16 | INSERT INTO EMPLOYEE VALUES (001, 'Jess', 'Dahlstrom', '2018-09-28', 'Manager', 001), (002, 'Tyler', 'Pearson', '2019-04-15', 'Cashier', 001), (003, 'Ethan', 'Stone', '2020-05-19', 'Cashier', 001), (004, 'George', 'Smith', '2019-02-19', 'Manager', 002), (005, 'Trevor', 'Hendricks', '2021-07-21', 'Cashier', 002), (006, 'Jamal', 'Swanson', '2022-07-09', 'Manager', 003), (007, 'Samuel', 'Yuen', '2015-03-12', 'Cashier', 003); | 7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0 | 0.000 sec        |

The bottom status bar shows the system clock as 3:37 PM on 6/16/2023.

# SUPPLIER Row Insertion

The screenshot displays the MySQL Workbench interface. On the left, the 'SCHEMAS' pane shows the 'sakila' database selected. The central 'Query Editor' contains an SQL script to insert three rows into the 'SUPPLIER' table. The 'Output' pane at the bottom shows the execution results, indicating that 3 rows were successfully inserted. A right-hand pane displays a message about disabled automatic context help.

**Query 1:**

```
1 INSERT INTO SUPPLIER
2 VALUES
3 (796, 'Sysco', 'United States of America', 'Emily Bunish', 'syscoclients@sysco.com'),
4 (823, 'Fresh Co.', 'United States of America', 'Todd Packer', 'customer@freshco.com'),
5 (904, 'Caribbean Beans Co.', 'Jamaica', 'Amanda Peterson', 'internationalsales@caribbeanbeans.jm');
```

**Output:**

| # | Time     | Action   | Message  | Duration / Fetch |
|---|----------|--|--|------------------|
| 1 | 15:39:18 | USE jauntycoffeeco   | 0 row(s) affected                                      | 0.000 sec        |
| 2 | 15:46:20 | INSERT INTO SUPPLIER VALUES (796, 'Sysco', 'United States of America', 'Emily Bunish', 'syscoclients@sysco.... | 3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0 | 0.000 sec        |

**SQLAdditions:**

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

# COFFEE Row Insertion

The screenshot displays the MySQL Workbench interface for a local instance of MySQL 8.0. The left sidebar shows the 'Schemas' tab with a tree view of the 'jauntycoffeeco' database, including tables like 'coffee', 'coffee\_shop', 'employee', and 'supplier'. The main query editor contains the following SQL code:

```
1 INSERT INTO COFFEE
2 VALUES
3 (001, 001, 796, 'Dark Roast', 9.56),
4 (002, 002, 796, 'Medium Roast', 8.99),
5 (003, 003, 796, 'Light Roast', 6.88);
```

The 'Output' tab at the bottom shows the execution results:

| #   | Time     | Action  | Message  | Duration / Fetch      |
|-----|----------|---|--|-----------------------|
| ✓ 1 | 15:47:37 | USE jauntycoffeeco  | 0 row(s) affected                                      | 0.000 sec             |
| ✓ 2 | 15:49:56 | SELECT * FROM SUPPLIER LIMIT 0, 1000  | 3 row(s) returned                                      | 0.000 sec / 0.000 sec |
| ✓ 3 | 15:52:53 | INSERT INTO COFFEE VALUES (001, 001, 796, 'Dark Roast', 9.56), (002, 002, 796, 'Medium Roast', 8.99), ... | 3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0 | 0.016 sec             |

The right sidebar shows a message: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."

The Windows taskbar at the bottom shows the system clock as 3:52 PM on 6/16/2023, with a temperature of 75°F and weather conditions of Haze.

# VIEW TABLE Creation

The screenshot displays the MySQL Workbench interface for a local instance of MySQL 8.0. The Navigator pane on the left shows the database structure for 'jauntycoffeeco', including tables (coffee, coffee\_shop, employee, supplier), views, stored procedures, and functions. The central query editor shows the following SQL code:

```
1 CREATE VIEW Employee_Concat_Names
2 AS SELECT employee_id, CONCAT(first_name, ' ', last_name) employee_full_name, hire_date, job_title, shop_id
3 FROM employee;
```

The Output pane at the bottom shows the execution results:

| # | Time     | Action  | Message           | Duration / Fetch |
|---|----------|---|-------------------|------------------|
| 1 | 16:02:42 | USE jauntycoffeeco  | 0 row(s) affected | 0.000 sec        |
| 2 | 16:02:50 | CREATE VIEW Employee_Concat_Names AS SELECT employee_id, CONCAT(first_name, ' ', last_name) employ... | 0 row(s) affected | 0.000 sec        |

The bottom of the screen shows the Windows taskbar with the date and time as 4:02 PM on 6/16/2023.



# INDEX Creation

The screenshot displays the MySQL Workbench interface. The 'Navigator' pane on the left shows the 'jauntycoffeeco' database with tables 'coffee', 'coffee\_shop', 'employee', and 'supplier'. The 'Query' editor in the center contains the following SQL code:

```
1 CREATE INDEX IX_Coffee_Name
2 ON COFFEE(coffee_name);
```

The 'Output' pane at the bottom shows the execution results:

| # | Time     | Action   | Message  | Duration / Fetch |
|---|----------|--|--|------------------|
| 1 | 16:10:55 | USE jauntycoffeeco                                 | 0 row(s) affected                                      | 0.000 sec        |
| 2 | 16:18:37 | CREATE INDEX IX_Coffee_Name ON COFFEE(coffee_name) | 0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0 | 0.031 sec        |

The Windows taskbar at the bottom shows the system clock as 4:18 PM on 6/16/2023.

# SELECT FROM WHERE Query

The screenshot displays the MySQL Workbench interface. The 'Query' tab is active, showing the following SQL query:

```
1 SELECT first_name, last_name, shop_id
2 FROM EMPLOYEE
3 WHERE shop_id = 001;
```

The 'Result Grid' shows the output of the query:

|   | first_name | last_name | shop_id |
|---|------------|-----------|---------|
| ▶ | Jess       | Dahlstrom | 1       |
|   | Tyler      | Pearson   | 1       |
|   | Ethan      | Stone     | 1       |

The 'Output' tab is also visible, showing the execution log:

| #   | Time     | Action  | Message           | Duration / Fetch      |
|-----|----------|---|-------------------|-----------------------|
| ✓ 1 | 16:20:25 | USE jauntycoffeeco  | 0 row(s) affected | 0.000 sec             |
| ✓ 2 | 16:22:08 | SELECT first_name, last_name, shop_id FROM EMPLOYEE WHERE shop_id = 001 LIMIT 0, 1000 | 3 row(s) returned | 0.000 sec / 0.000 sec |

The 'SQLAdditions' panel on the right contains the following text:

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.



# INNER JOIN Query

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

jauntycoffeeco

- Tables
  - coffee
  - coffee\_shop
  - employee
  - supplier
- Views
  - employee\_concat\_name
- Stored Procedures
- Functions

mydb

sakila

sys

Query 1

```
1 SELECT CS.shop_name AS Shop, C.coffee_name AS Coffee, S.company_name AS Supplier
2 FROM coffee_shop CS
3 INNER JOIN coffee C ON CS.shop_id = C.shop_id
4 INNER JOIN supplier S ON C.supplier_id = S.supplier_id;
```

Limit to 1000 rows

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

Information

No object selected

Result Grid

| Shop          | Coffee       | Supplier |
|---------------|--------------|----------|
| Java Lava     | Dark Roast   | Sysco    |
| Angie's Cafe  | Medium Roast | Sysco    |
| Paul Bunyan's | Light Roast  | Sysco    |

Result 1

Output

Action Output

| # | Time     | Action  | Message           | Duration / Fetch      |
|---|----------|---|-------------------|-----------------------|
| 1 | 16:23:12 | USE jauntycoffeeco  | 0 row(s) affected | 0.000 sec             |
| 2 | 17:02:58 | SELECT CS.shop_name AS Shop, C.coffee_name AS Coffee, S.company_name AS Supplier FROM coffee_sho... | 3 row(s) returned | 0.000 sec / 0.000 sec |

Object Info Session

76°F Rain tomorrow

Search

5:03 PM 6/16/2023